UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,437	07/09/2003	Hans F. van Rietschote	5760-12200	9169

7590	10/18/2005		EXAMINER	

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TRUONG, CAMQUY

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/616,437	VAN RIETSCHOTE ET AL.
	Examiner	Art Unit
	Camquy Truong	2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

- A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
  - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 July 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-33 are presented for examination.

2.   It is noted that although the present application does contain line numbers in the
specification and claims, the line numbers in the claims do not correspond to the
preferred format. The preferred format is to number each line of every claim, with each
claim beginning with line 1. For ease of reference by both the examiner and Applicant
all future correspondence should include the recommended line numbering.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-11 and 13--33 are rejected under 35 U.S.C. 103(a) as being
unpatentable over Applicant Admitted Prior Art (AAPA) in view of Saito et al. (U.S.
Patent 6,578,064 B1).

5.   Saito was cited in the last office action.

6.   As to claim 1, AAPA teaches the invention substantially as claimed including:

a cluster comprising a plurality of computer systems, wherein each of the plurality of

computer systems is configured to execute one or more virtual machines, each of the

plurality of computer systems comprising hardware (page 1, lines 10- 16), migrates at

least a first virtual machine executing on the first computer system to the second

computer system responsive to detecting the failure of the virtual machine (page 1, lines

17- 21 and lines 23-29).

7.   AAPA does not explicitly teach a plurality of instructions when executed on the

hardware detects that a first load of a first computer system of the plurality of computer

systems exceeds a second load of a second computer system of the plurality of

computer systems. However, Saito teaches when executed on the hardware, detects

that a first load of a first computer system of the plurality of computer systems exceeds

a second load of a second computer system of the plurality of computer systems (col.

24, line 22 – col. 25, line 2).

8.   It would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine the teaching of AAPA and Saito because Saito's when

executed on the hardware, detects that a first load of a first computer system of the

plurality of computer systems exceeds a second load of a second computer system of

the plurality of computer systems would improve the efficiency of AAPA'S system by

providing the step of detecting a first load of a first computer exceeds a second load of

a second computer system to provide more accurately evaluated so that fully equal load

distribution can be accomplished.

9.   As to claim 2, AAPA teaches the first virtual machine executes on the second

computer system independent of the first computer system, even if the first virtual

machine was initially launched on the first computer system (page 1, lines 17-20).

10.   As to claims 3-4, Saito teaches the plurality of instructions, when executed on the

first computer system, select the second computer system to compare loads (col. 4,

lines 18-22; col. 24, lines 38-49).

11.   As to claim 5, AAPA teaches the first virtual machine has a corresponding

load, among loads of the virtual machines executing on the first computer

system (page 1, lines 23-29);

 Saito teaches the computer has a corresponding load that is nearest, among other

computer, to 1/2 the difference between the first load and the second load (col. 22, lines

26-47).

12.   As to claims 6 -7, Saito teaches the corresponding load of a computer represents

the actual load experienced in executing the computer (col. 24, lines 28-49; col. 25,

lines 3-4).

13.   As to claim 8, AAPA teaches the first virtual machine has a first corresponding

load on the first computer system and a second corresponding load on the second

computer system, and wherein the first corresponding load differs from the second

corresponding load (page 1, lines 23-29),

Saito teaches wherein the first computer system is configured to transmit one or

 more load factors to the second computer system, and wherein the second computer

system is configured to calculate the second corresponding load from the one or more

load factors, and wherein the first computer system and the second computer system

are configured to exchange the first corresponding load and the second corresponding

load to select the first virtual machine for migration (col. 24, line 59 – col. 25, line 2).

14.   As to claims 9 -10, Saito teaches the first computer has a corresponding load

that is calculated as a weighted combination of measurements of usage of two or

more resources of the first computer system (col. 25, lines 37-41).

15.   As to claim 11, Saito teaches the measurements of usage include an amount of

input/output activity generated by the first virtual machine during execution (col. 25,

lines 55-65).

16.   As to claim 13, Saito teaches each of the plurality of computer systems include a

schedule having a plurality of entries, each entry corresponding to program to be

executed on the respective one of the plurality of computer systems (col. 11, lines 4-9),

and wherein migrating the program comprises deleting the entry corresponding to the

computer in the schedule of the first computer system and inserting the entry

corresponding to the computer in the schedule of the second computer

system (col. 11, lines 37-50; col. 41, lines 10-30; col. 15, lines 20-31; col. 23, lines 10-

20).

17.   As to claim 14, it is rejected for the same reason as claim 1. In addition, AAPA

teaches scheduling one or more virtual machines for execution on hardware comprising

a first computer system of a plurality of computer system (page 1, lines 10-16)

18.   As to claim 15, it is rejected for the same reason as claim 2.

19.   As to claim 16, it is rejected for the same reason as claims 2 and 14.

20.   As to claim 17, it is rejected for the same reason as claim 4.

21.   As to claim 18, it is rejected for the same reason as claim 4. In addition, Saito

teaches comprising each of the plurality of computer systems periodically randomly

selecting another one of the plurality of computer systems (col. 23, lines 25-37).

22.   As to claim 19, it is rejected for the same reason as claim 5.

23.   As to claim 20, it is rejected for the same reason as claim 8.

24.   As to claim 21, it is rejected for the same reason as claim 9.

25.   As to claim 22, it is rejected for the same reason as claim 13.

26.   As to claim 23, it is rejected for the same reason as claim 14.

27.   As to claim 24, it is rejected for the same reason as claim 1. In addition, AAPA

teaches schedule the one or more virtual machines for execution on hardware

comprising the first computer system (page 1, lines 10-16).

28.   As to claim 25, it is rejected for the same reason as claim 2.

29.   As to claim 26, it is rejected for the same reason as claim 3.

30.   As to claim 27, it is rejected for the same reason as claim 4.

31.   As to claim 28, it is rejected for the same reason as claim 5.

32.   As to claim 29, it is rejected for the same reason as claim 6.

33.   As to claim 30, it is rejected for the same reason as claims 6-7.

34.   As to claim 31, it is rejected for the same reason as claim 8.

35.   As to claim 32, it is rejected for the same reason as claim 9.

36.   As to claim 33, it is rejected for the same reason as claim 13.

37.   Claim 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant Admitted Prior Art (AAPA) in view of Saito et al. (U.S. Patent 6,578,064 B1) as

applied as claim 1 above, and further in view of Bodin et al (U.S. Patent 5,675,762).

38.   As to claim 12, AAPA and Saito do not explicitly teach the measurements of

usage include an amount of memory occupied by the first virtual machine. However,

Bodin teaches the measurements of usage include an amount of memory occupied by

the first virtual machine (abstract; col. 2, lines 41-45).

39.   It would have been obvious to one of ordinary skill in the art at the time the

invention was made to apply the teaching of AAPA, Saito and Bodin because Bodin's

measurements of usage include an amount of memory occupied by the first virtual

machine would improve the efficiency of AAPA and Saito's system by providing the step

of measurements of usage include an amount of memory of the virtual machine to improve the data transfer between an application running in virtual mode.

Response to the argument

40.   Applicant arguments filed on 7/22/05 had been considered but they are not persuasive. In the remarks applicant argued (1) " AAPA and Saito do not teaches or suggest the first computer system detecting ... and the first computer system migrating at least a first virtual machine executing on the first computer system to a second computer system of the plurality of computer systems responsive to the detecting ".

41.   Examiner respectfully traverses Applicant's remarks:

As to point (1), Saito teaches if a load on a computer containing the program migrate determination procedures is larger as compared with loads on other computer (col. 24, lines 24-30). AAPA teaches tasks that were executing in virtual machines on that computer system may be transferred to similar virtual machines on other computer systems (page 1, lines 18-20). AAPA does not teach tasks that were executing n virtual machines on that computer system may be transferred to similar virtual machines on other computer systems base on the load. However, Saito teaches if a load on a computer containing the program migrate determination procedures is larger as compared with loads on other computer, the program migrate determination procedure determines to migrate a program in the associated computer (col. 24, lines 28-33).

42.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Conclusion

43.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Camquy Truong whose telephone number is (571) 272-3773.

The examiner can normally be reached on 8:00Am – 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-3756.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR of Public PAIP. Status

information for unpublished applications is available through Private PAIR only. For more

information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

have questions on access to the Private PAIP system, contact the Electronic Business Center

(EBC) at 866-217-9197(toll-free).

Camquy Truong

September 21, 2005

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